

Addressing Smoking in Pregnant Women with Mental Health Disorders

January 26, 2017

2016 Community Health Promotion Summit

***Strategies to Advance Health Equity
to Reduce Obesity & Tobacco Use***

Van Tong, MPH

Epidemiologist

Maternal Health Team

Maternal and Infant Health Branch

CDC Division of Reproductive Health

*National Center for Chronic Disease Prevention and Health Promotion
Division of Reproductive Health*



Best Title Generator

- ❑ Marriage and Smoking Cessation Have More in Common Than you Think**
- ❑ No More Mistakes with Smoking Cessation**
- ❑ What Zombies Can Teach you about Smoking Cessation**
- ❑ 2 Ways You Can Use Smoking Cessation To Become Irresistible to Customers**
- ❑ Fascinating Smoking Cessation Tactics to Help your Business Grow**
- ❑ How You Can (Do) Smoking Cessation Almost Instantly**
- ❑ Are You Making These Smoking cessation Mistakes?**
- ❑ Make Your Smoking Cessation A Reality**

CDC Tobacco and Pregnancy Activities

- ❑ **Monitor trends of tobacco use before, during, and after pregnancy**
- ❑ **Conduct research on health outcomes & economic costs**
- ❑ **Evaluate interventions and promote effective interventions and policies**
- ❑ **Provide technical assistance to organizations**
- ❑ **Collaborate with governmental agencies and NGOs**

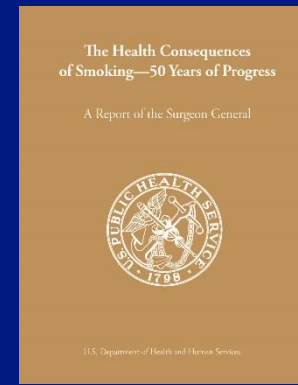


Presentation Outline

- ❑ **Epidemiology of maternal tobacco use**
 - *National*
 - *Subgroups of high risk*
 - *Kansas*
- ❑ **Intersection with mental health**
 - *Focus on depression and anxiety*
- ❑ **Effective interventions for perinatal period**
- ❑ **Resources**

Maternal Smoking: Health Effects

- ❑ Ectopic pregnancy
- ❑ Reduced fertility
- ❑ Preterm delivery and related deaths
- ❑ Restricted fetal growth
- ❑ Cleft lip/palate
- ❑ Sudden Infant Deaths (SIDS)



Source: Surgeon General's Report: *The Health Consequences of Smoking*, 2004 ;*How Tobacco Smoke Causes Disease*, 2010; *The Health Consequences of Smoking – 50 Years of Progress*, 2014

Public Health Impact

- ❑ **Adverse infant outcomes attributable to prenatal smoking are (based on 2002 data)¹:**
 - *5%–8% of preterm deliveries*
 - *13%–19% of term low birth weight deliveries*
 - *5%–7% of preterm-related deaths*
 - *23%–34% of SIDS*

- ❑ **In the US, about 1000 infant deaths a year are attributable to prenatal smoking ²**

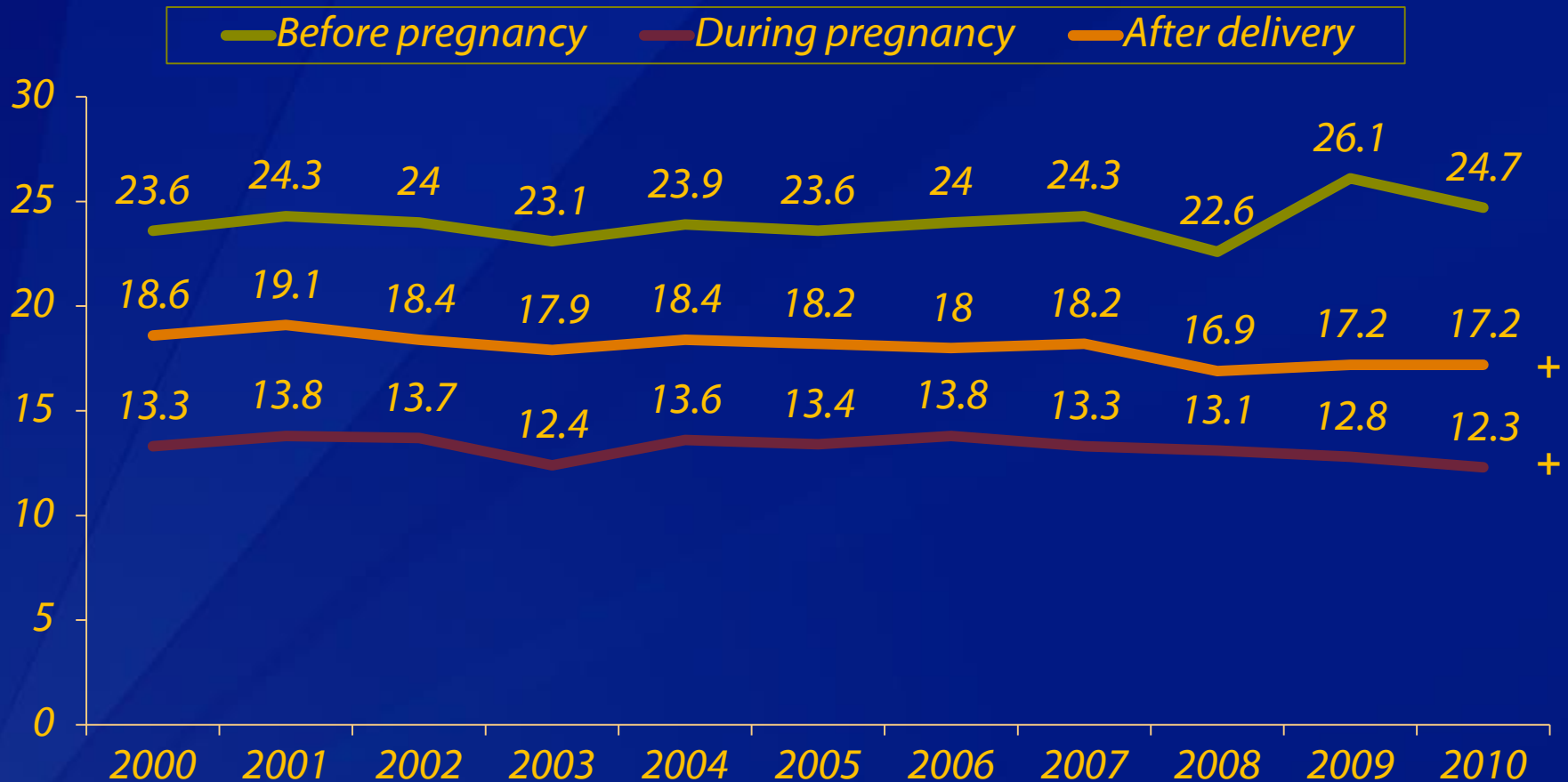
1) 2014 Surgeon General's Report

2) Dietz PM et al. Am J Prev Med. 2010 Jul;39(1):45-52.

Maternal Quitting: Health Benefits

- ❑ Birth weight = same as in never smokers
- ❑ Preterm risk decreases
- ❑ High prevalence of postpartum relapse but...
- ❑ In a cohort study of over 6000 mothers in Australia¹
 - *Quitting during pregnancy correlated with quit status at 6 months, 5 years, 14 years, and 21 years*

Trends in Smoking Before, During, and After Pregnancy, PRAMS 2000-2010



* <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6206a1.htm>

+ Significant linear trend over time ($p < 0.05$)

Prenatal Smoking Patterns

❑ One in 5 women smoke pre-pregnancy

- *Approximately 50% quit smoking by late pregnancy*

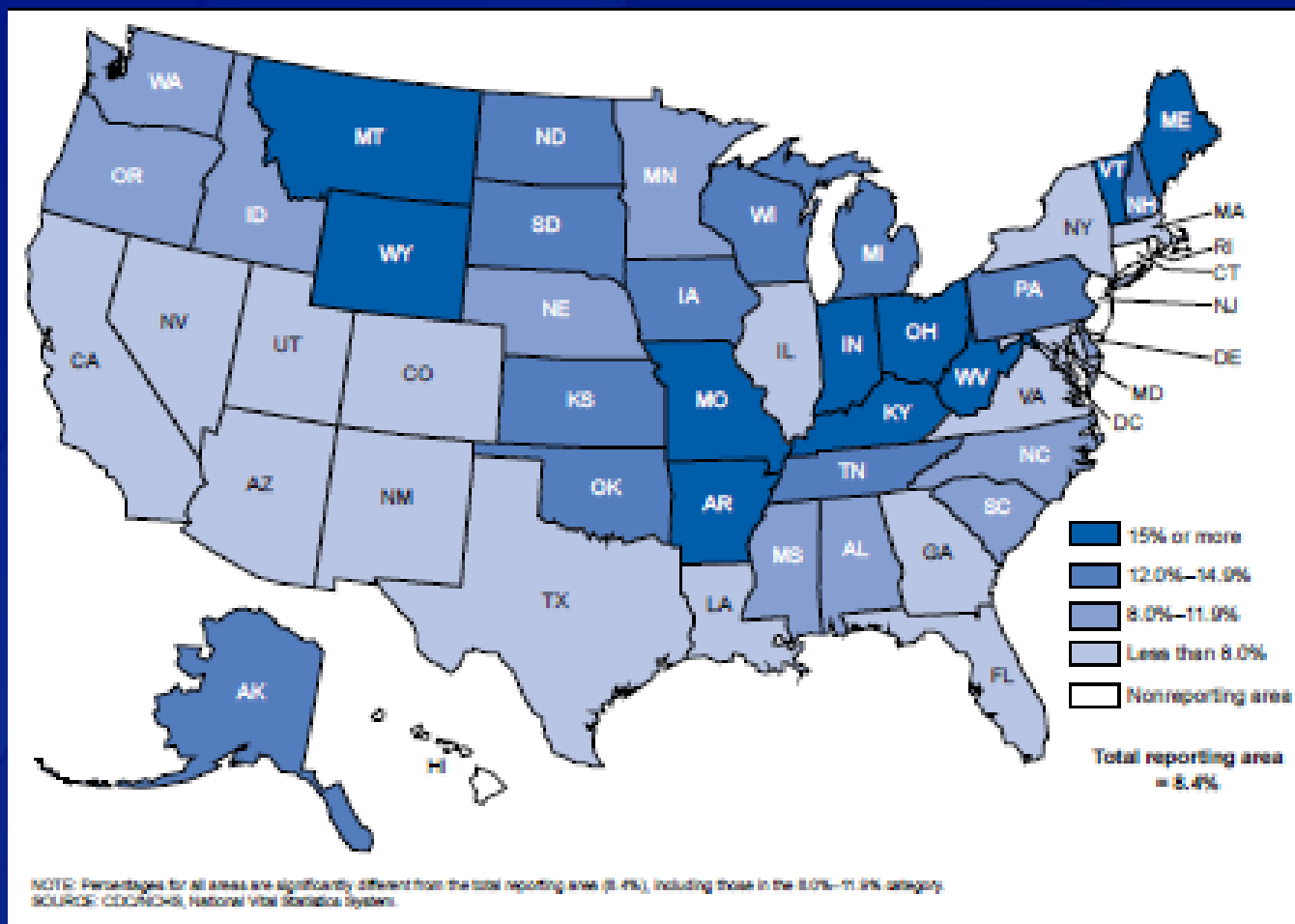
❑ Prenatal smokers

- *Higher in <25 years of age; higher among non-Hispanic Whites, American Indians, or Alaska Natives*
- *More likely to be low-income and live with a smoker*

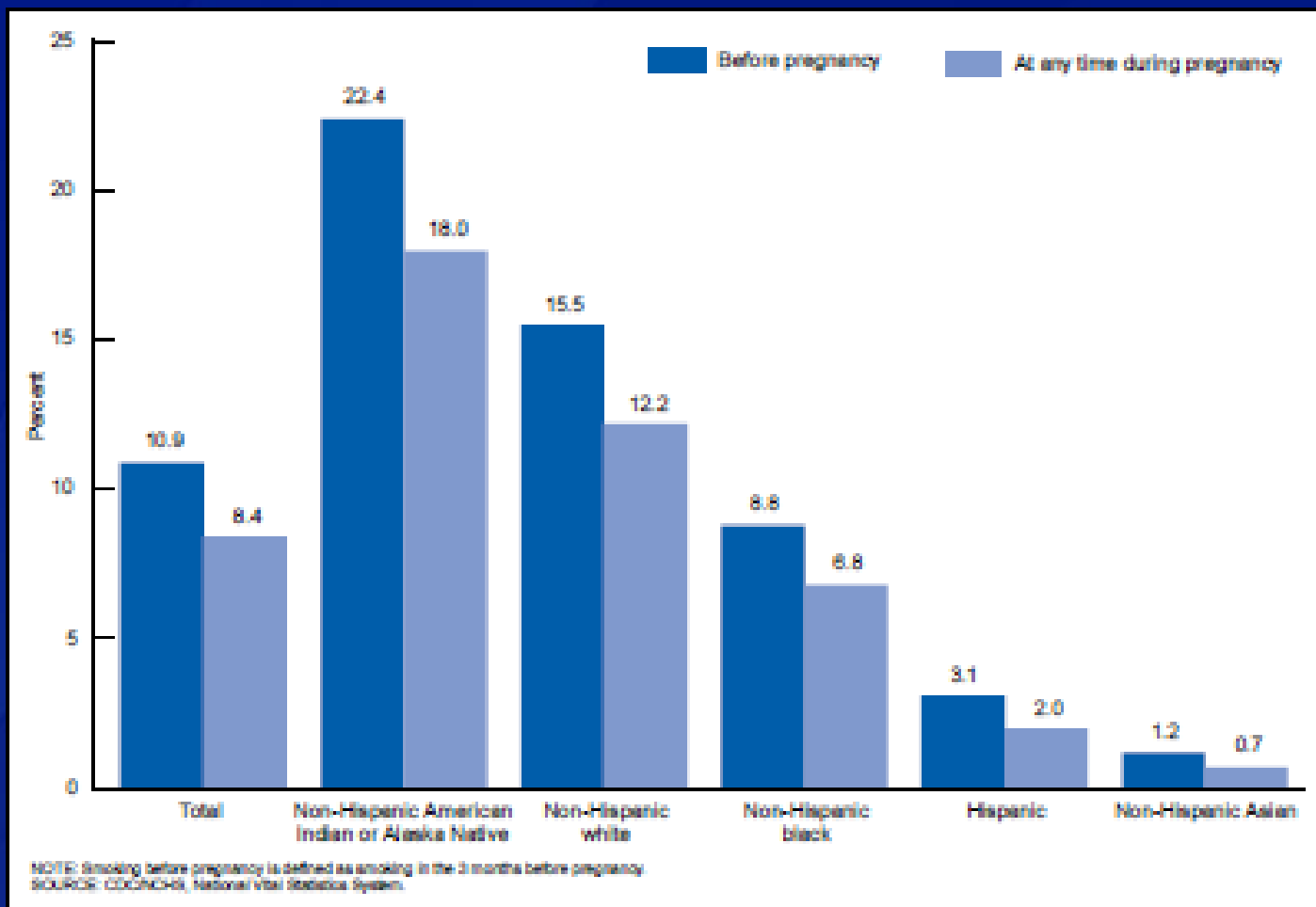
❑ Among women who quit during pregnancy, almost half relapsed to smoking after delivery



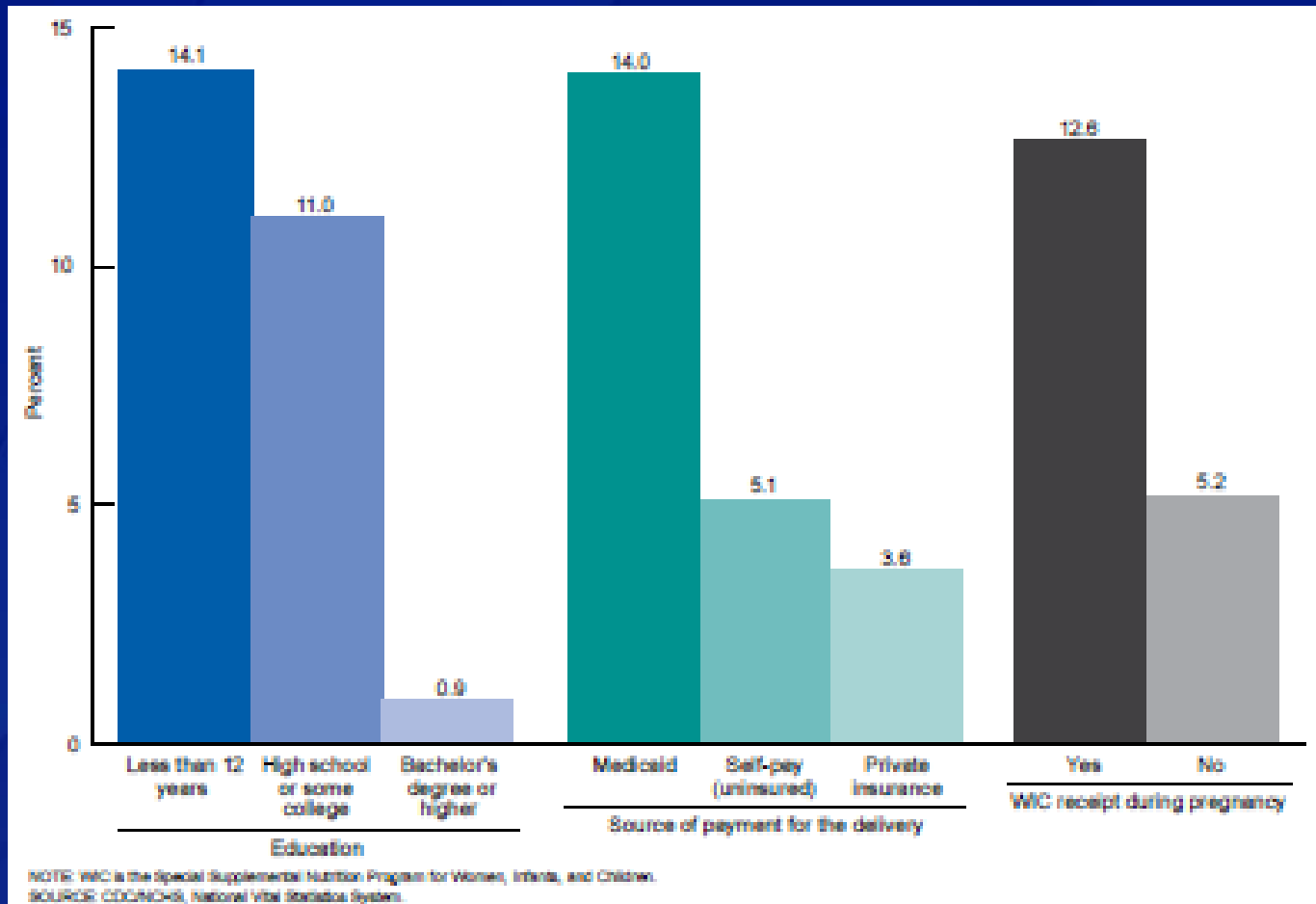
Maternal Smoking at Any Time During Pregnancy, by State: 46 States and DC, 2014



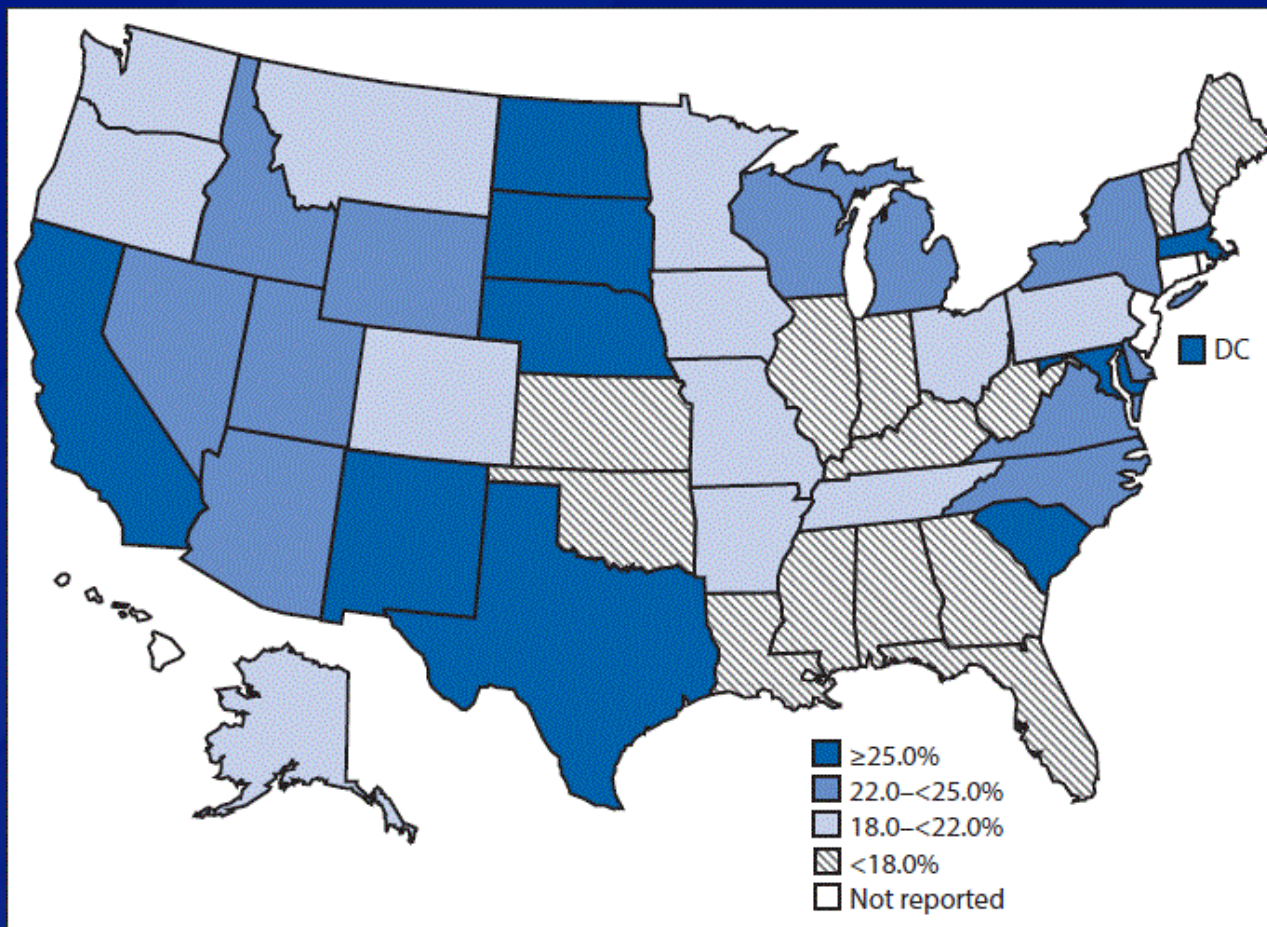
Maternal smoking before and at any time during pregnancy, by race and Hispanic origin of mother: 46 states and DC, 2014



Maternal smoking at any time during pregnancy, by education, delivery insurance, and WIC receipt: 46 states and DC, 2014



Smoking Cessation During Pregnancy: 46 States and DC, 2014



Maternal Smoking from the Birth Certificate, Kansas, 2014

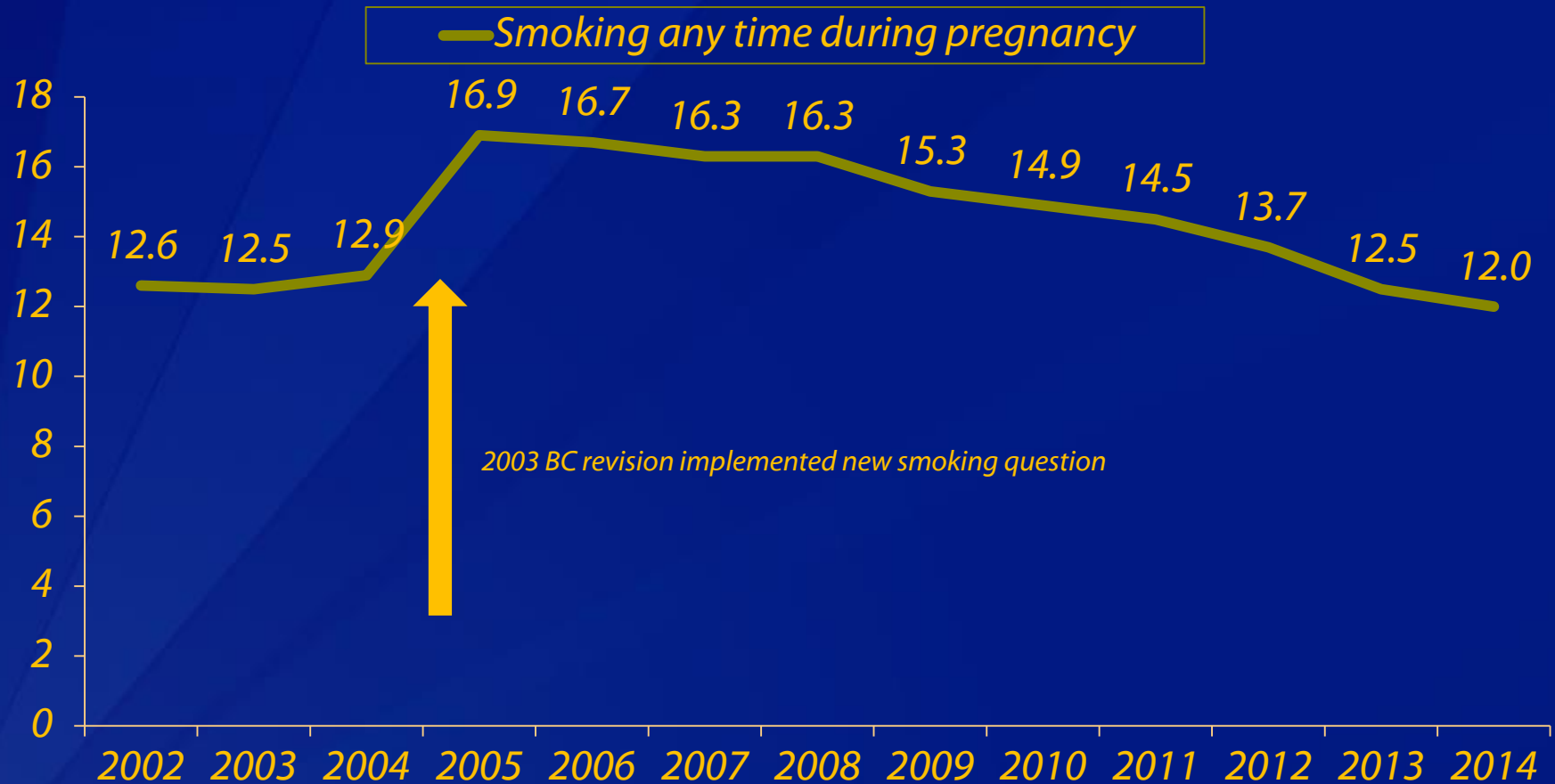
Indicator	Percentage
Smoked in the 3 months before pregnancy	14.1
Quit smoking before pregnancy ¹	15.8
Smoke anytime during pregnancy	12.0
First trimester	11.7
Second trimester	10.3
Third trimester	9.9
Quit during pregnancy ²	17.2

http://www.cdc.gov/mmwr/volumes/65/wr/mm6522a6.htm?s_cid=mm6522a6_w

1. Includes those women who smoked in the 3 months before pregnancy.

2. Includes women who reported smoking in either the first or second trimester and did not report smoking in the third trimester.

Maternal Smoking from the Birth Certificate, Kansas, 2002-2014



INTERSECTION WITH MENTAL HEALTH



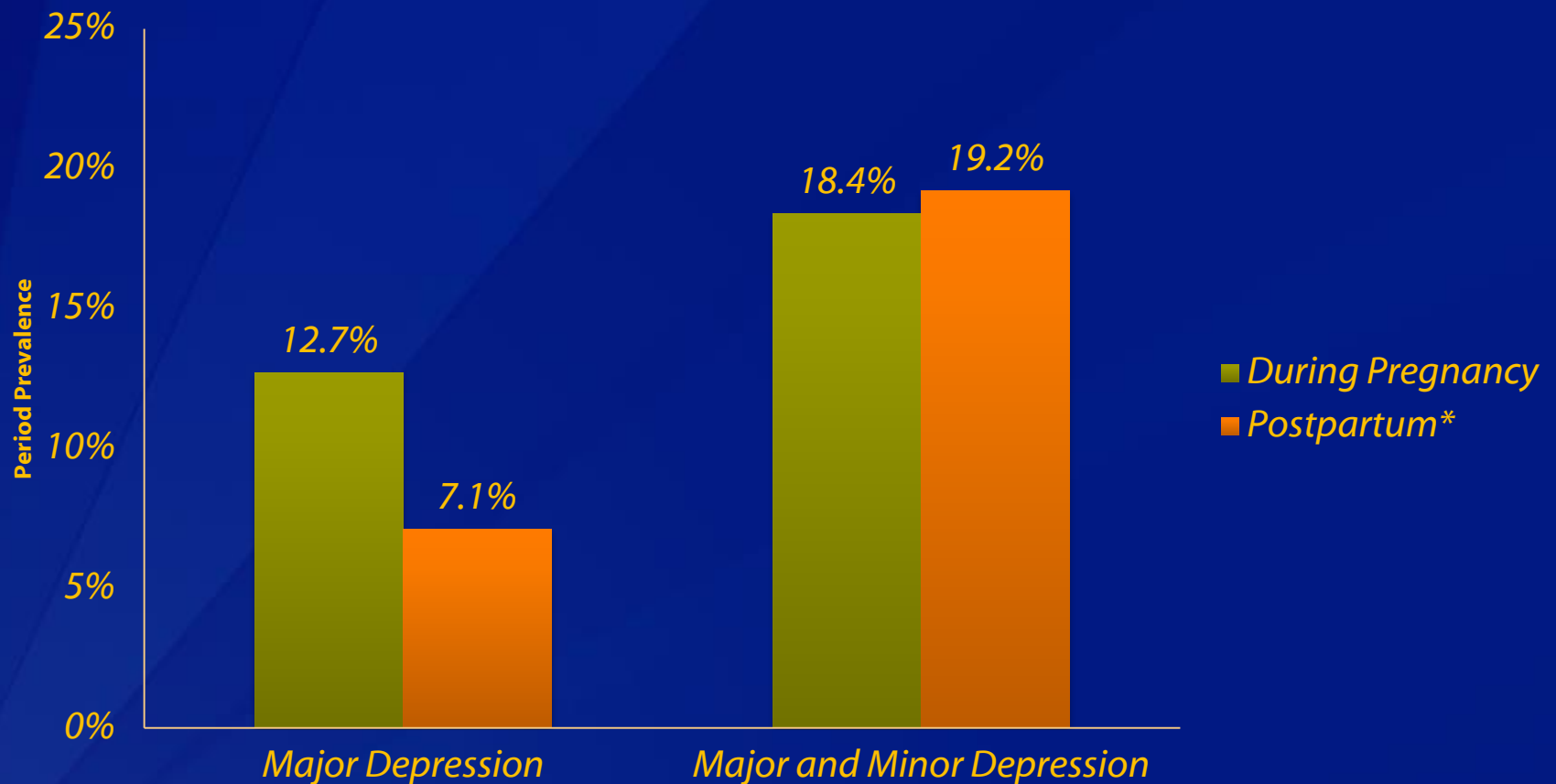
Depression

- ❑ **Leading cause of disability worldwide**
- ❑ **16.1 million U.S. adults experience depression**
- ❑ **Those with depression die 8 years earlier all-cause mortality, compared to those without depression**
- ❑ **Increases the risk of suicide**
 - **Suicide rate: 5.8 per 100,000 U.S. females**

Depression in Women

- ❑ **Lifetime and past-year prevalence greater in women**
- ❑ **Average age of onset during reproductive years: 30.4 years of age**
- ❑ **Longest median duration of episode: 22.9 weeks**
- ❑ **One of the top 5 of most common complications during pregnancy**

Burden of Depression During Pregnancy and Postpartum



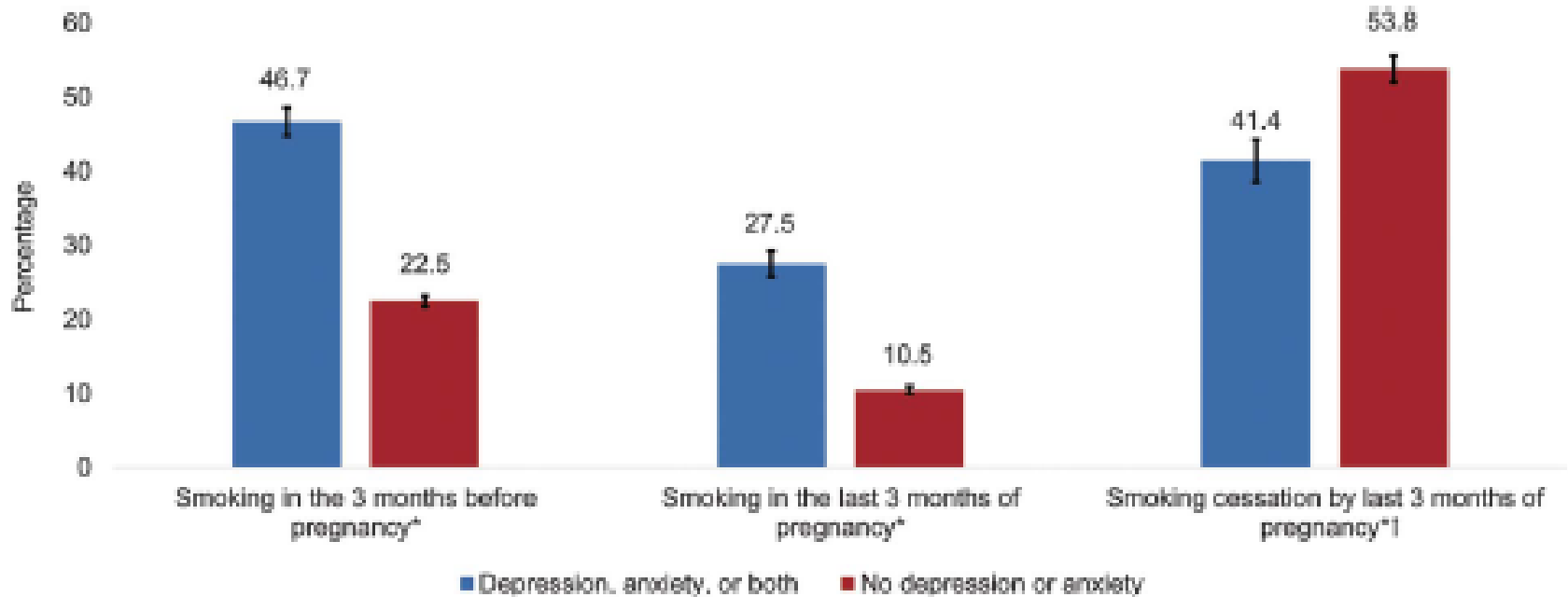
*first 3 months postpartum; Gavin et al., 2005; Gaynes et al., 2005

Smoking Before and During Pregnancy Among Women Reporting Depression or Anxiety

Van T. Tong, MPH, Sherry L. Farr, PhD, Jennifer Bombard, MSPH, Denise D'Angelo, MPH, Jean Y. Ko, PhD, and Lucinda J. England, MD, MSPH

- ❑ **Cross-sectional data from the 2009–2011 Pregnancy Risk Assessment Monitoring System**
- ❑ **Smoking status self-reported before and during pregnancy**
 - 3 months before pregnancy
 - Last 3 months of pregnancy
 - Quit smoking by last 3 months
- ❑ **Depression and anxiety status was self-reported of having either condition or both during the 3 months before pregnancy**

Prevalence of Smoking by Reported Depression or Anxiety Status



Association Between Reported Smoking and Depression or Anxiety Status

	Crude Prevalence Ratio (95% CI)	Adjusted Prevalence Ratio (95% CI)
Smoked in the 3 mo before pregnancy		
Depression or anxiety	2.08 (1.97–2.19)	1.49 (1.41–1.57) [†]
None	Reference	Reference
Smoked in the last 3 mo of pregnancy		
Depression or anxiety	2.62 (2.42–2.84)	1.69 (1.56–1.84) [‡]
None	Reference	Reference
Smoking cessation by the last 3 mo of pregnancy [§]		
Depression or anxiety	0.77 (0.71–0.83)	0.86 (0.80–0.92)
None	Reference	Reference

CI, confidence interval.

* Nine Pregnancy Risk Assessment Monitoring System states in 2009–2011: Delaware, Hawaii, Maryland, Michigan, Minnesota, Missouri, Utah, West Virginia, and Wyoming.

[†] Adjusted for maternal age, race and ethnicity, education, marital status, insurance coverage before pregnancy, parity, alcohol use or binge drinking before pregnancy, physical abuse before and during pregnancy, state and year of neonatal birth.

[‡] Adjusted for maternal race and ethnicity, education, marital status, insurance coverage during prenatal care and at delivery, parity, physical abuse before and during pregnancy, and state (n=33,492).

[§] Smoking cessation by the last 3 months of pregnancy was calculated among prepregnancy smokers only.

^{||} Adjusted for maternal race and ethnicity, education, marital status, insurance coverage before pregnancy, parity, physical abuse before and during pregnancy, and state (n=9,350).|

Summary of Findings

- ❑ **Women who reported depression, anxiety, or both had higher smoking prevalence in the 3 months before pregnancy compared with those not reporting either condition**
 - **Almost half of women reporting depression or anxiety reported smoking**
- ❑ **Women reporting depression or anxiety were more likely to smoke during pregnancy and less likely to quit by the last 3 months of pregnancy than those not reporting either condition**

Tobacco Use & Mental Health

- ❑ Tobacco use as an agent to relieve stress and anxiety**
- ❑ Traditional cessation interventions do not address their mental health needs**
- ❑ Evidence suggests that continued smoking can worsen mental health conditions**

Tobacco Cessation & Mental Health

- ❑ **Tobacco cessation improves mental health conditions**
- ❑ **A meta-analysis found that tobacco cessation was associated with reduced depression, anxiety, and stress and improved mood and quality of life (1)**
- ❑ **Cessation trials of pregnant smokers have also documented improved mental health status and well-being after tobacco cessation**
 - **An incentive-based cessation trial increased cessation among pregnant women with diagnosed depression and reduced the severity of postpartum depression symptoms (2)**

What Can Be Done?

- ❑ Importance to screen for smoking and depression around the time of pregnancy**
- ❑ Patients and health care providers should be aware that tobacco cessation can contribute to improved mental health and improved pregnancy health**
- ❑ Conduct research to establish evidence based interventions for high risk groups**

EFFECTIVE INTERVENTIONS



Opportunities for Screening and Care

- ❑ **Clinical recommendations have included routine tobacco use screening at every prenatal care visit**
- ❑ **In 2015, the American College of Obstetricians and Gynecologists recommends that clinicians screen all pregnant women for depression and anxiety symptoms**
 - **Systems should be in place to ensure follow-up for diagnosis and treatment**
- ❑ **Given the high comorbidity between mental health status and smoking, this presents opportunity for providers to offer evidence-based tobacco cessation interventions and mental health care**

2015 USPTF Recommendations For Tobacco Cessation Interventions

Population	Recommendation	Grade
Pregnant women	<i>The USPSTF recommends that clinicians <u>ask all</u> pregnant women about tobacco use, <u>advise them to stop using tobacco</u>, and <u>provide behavioral interventions</u> for cessation to pregnant women who use tobacco.</i>	A
Pregnant women	<i>The USPSTF concludes that the current evidence is <u>insufficient</u> to assess the balance of benefits and harms of <u>pharmacotherapy interventions</u> for tobacco cessation in pregnant women.</i>	I
All adults, including pregnant women	<i>The USPSTF concludes that the current evidence is <u>insufficient</u> to recommend <u>electronic nicotine delivery systems (ENDS)</u> for tobacco cessation in adults, including pregnant women. The USPSTF recommends that clinicians direct patients who smoke tobacco to other cessation interventions with established effectiveness and safety (previously stated).</i>	I

Perinatal Screening Guidelines

- ❑ American College of Obstetricians and Gynecologists (ACOG) recommends routine screening for tobacco use.
- ❑ Prenatal care providers deliver a brief counseling session for patients who are willing to try to quit smoking
- ❑ Counseling approaches, such as the 5A's intervention (ask, advise, assess, assist, and arrange), have been shown to be effective when initiated by health care providers

Telephone Quitlines

- ❑ **Telephone quitlines (QL) offer effective, free smoking cessation services**
 - *High satisfaction among women who participated in counseling*
 - *Pregnant women may be aware of the QLs but many prefer to try to quit on their own*
 - *Among those who are referred to QLs, adherence to call schedule is difficult*



Best Practice for Perinatal Depression Treatment

- ❑ Although screening is important for detecting perinatal depression, screening by itself is insufficient to improve clinical outcomes**
- ❑ Screening should be coupled with appropriate follow-up and treatment when indicated**
- ❑ Clinical staff in obstetrics and gynecology practices should be prepared to initiate medical therapy, refer patients to appropriate behavioral health resources when indicated, or both.**

Tobacco Cessation

- ❑ Tobacco cessation treatment should be conducted in conjunction with treatment or referral for depression or anxiety**
- ❑ At minimum, all smokers before and during pregnancy should be offered standard-of-care tobacco cessation counseling, and women reporting depression or anxiety may need additional cessation support**

Coverage of Cessation Treatment

- ❑ **As of Oct 2010, the Affordable Care Act (ACA) mandated that state Medicaid programs cover comprehensive tobacco treatment for pregnant women without cost-sharing¹**
 - ❑ **All states have met this mandate²**
 - ❑ **83% of OB/GYNs were unaware of the benefit; one-third of respondents reported that reimbursement would influence them to increase their cessation services³**

1. <https://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Tobacco.html>
2. McMenamin et al.. Am J Prev Med. 2012 Oct;43(4):e27-9.
3. Tong et al. Prev Med Rep. 2015;2:686-688.

Coverage of Depression Treatment

- ❑ All state programs provide at least some mental health services to Medicaid beneficiaries¹
- ❑ Many states offer coverage of depression screening and treatment for pregnant women²
- ❑ Most individual and small group health insurance plans and Medicaid Alternative Benefit Plans are required to cover mental health and substance use disorder services¹

1. USDHHS: <http://www.mentalhealth.gov/get-help/health-insurance>

2. NIHCM: <http://www.nihcm.org/>

RESOURCES



Smoking Cessation For Pregnancy And Beyond: A Virtual Clinic



- ❑ **This free web-based training is designed for health care professionals to effectively assist pregnant women and women in the childbearing years to quit smoking**
 - *Physicians, midwives, nurses, health educators, pharmacists, etc...*
- ❑ **The training program teaches a best practice approach for smoking cessation, the 5A's, and is based on current clinical recommendations from the USPHS and ACOG**
- ❑ **Program endorsed by ACOG**
- ❑ **www.smokingcessationandpregnancy.org/**



Dartmouth Medical School



New module on the harms of E-cigarette use during pregnancy



Cheryl Oncken, MD, MPH

Professor of Medicine
Director of
Cancer Prevention and Control

UConn Health
Farmington, CT

Stated E-cigarette "Facts"

Accurate

Inaccurate/
Misleading

David Letterman Show

Exhaled smoke is water vapor

Vapor "is not harmful to yourself or others"

Nicotine and caffeine are equally safe/harmful

Jenny McCarthy Ad

E-cigs "satisfy" my smoking needs

E-cigs reduce the cosmetic harm of smoking

I can use e-cigarettes "just about anywhere"

News Segment on Vaping While Pregnant

There's been little research on vaping health effects

Nicotine's main effect is to restrict placental circulation

"Vaping" is generally safer than smoking

But compared to not smoking at all...
...there is evidence for harm

Nicotine addiction and negative health impacts
--evidence from animal models
--and human studies

**Nicotine is toxic to fetus and not safe
to use during pregnancy**

Nicotine may also harm brain development
among adolescents and young adults

Long-term health effects of breathing other
components of e-cigarette aerosol are unknown

Resources: Tobacco Cessation

For consumers

- ❑ CDC TIPS website: www.cdc.gov/tips
- ❑ Info on smoking and pregnancy: <http://www.cdc.gov/Features/PregnantDontSmoke/>
- ❑ Tips on quitting: <http://women.smokefree.gov/>
- ❑ Smoke free home pledge: <http://www.epa.gov/smokefree/>
- ❑ 1-800-QUIT-NOW: <http://1800quitnow.cancer.gov/>
- ❑ Text4baby: <http://www.text4baby.org/>

For clinicians and public health practitioners

- ❑ CDC factsheet for providers: <http://www.cdc.gov/reproductivehealth/TobaccoUsePregnancy/Providers.html>
- ❑ Smoking Cessation for Pregnancy & Beyond: Virtual Practicum www.smokingcessationandpregnancy.org/
- ❑ CDC TIPS website: www.cdc.gov/tips
- ❑ ACOG Clinician guide to helping pregnant women quit smoking: http://www.acog.org/departments/dept_web.cfm?recno=13

Resources: Depression

For consumers

- ❑ Postpartum Support International: <http://www.postpartum.net>
- ❑ National Suicide Prevention Lifeline: <http://suicidepreventionlifeline.org/> at 1-800-273-TALK (8255), available 24 hours a day, 7 days a week. TTY: 1-800-799-4889

For clinicians and public health practitioners

- ❑ ACOG: <http://www.acog.org/Womens-Health/Depression-and-Postpartum-Depression>
- ❑ National Alliance on Mental Illness: <https://www.nami.org/>
- ❑ CDC: <http://www.cdc.gov/reproductivehealth/depression/index.htm>
- ❑ <http://www.cdc.gov/features/maternal-depression/index.html>

Summary

- ❑ **Quitting smoking has health benefits for mother and baby and improvement of mental health**
- ❑ **1 in every 10 women continue to smoke during pregnancy**
 - *Women with depression/anxiety are more likely to smoke and less likely to quit smoking*
- ❑ **Effective interventions exist**
 - *Ask all pregnant women about tobacco use*
 - *Screening for perinatal depression*
 - *Increase awareness that quitting smoking and improve mental health and increase mood and quality of life*
 - *Provide effective interventions*

Acknowledgements

- ❑ **Dr. Jean Ko**
- ❑ **Dr. Lucinda England**
- ❑ **Dr. Sherry Farr**
- ❑ **Denise D. Angelo**
- ❑ **Jennifer Bombard**

Tobacco Use and Pregnancy Website:

<http://www.cdc.gov/reproductivehealth/TobaccoUsePregnancy/index.htm>

**Contact info: Van Tong
vtong@cdc.gov**

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333

Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: cdcinfo@cdc.gov Web: www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.